

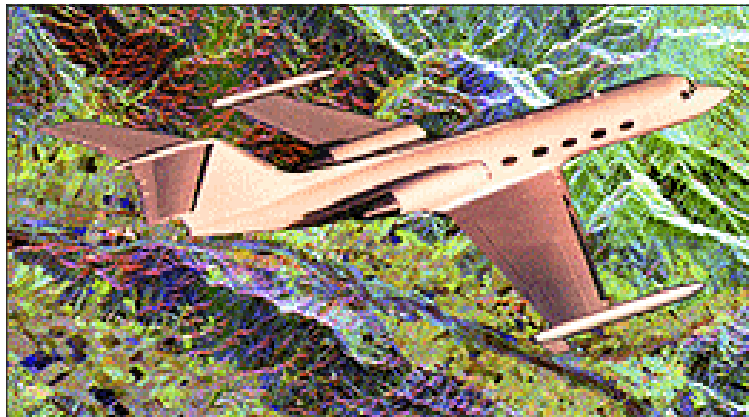


## NASA Jet Propulsion Lab Tests Radar System at LaTour Demonstration State Forest

World famous for pioneering work in rocket propulsion and guidance, planetary exploration, and a host of other scientific endeavors, Jet Propulsion Lab (JPL) scientists conducted field verification studies on the LaTour Demonstration State Forest in Shasta County. Experiments were conducted on an airborne synthetic aperture radar system (GeoSAR) that measures the earth's surface in two wave-lengths, the X and P bands.

The X band radar produces measurements of the top of the vegetation while the P band penetrates foliage to give ground surface elevations. To provide a truly 3-dimensional image, two images are taken of each location. Because the radar wave-lengths do not rely on the visible or near visible portion of the electromagnetic spectrum, data may be collected at night or during overcast conditions.

LaTour was selected as a test and calibration site along with Montana De Oro State Park on the central coast of California.



Gulfstream II aircraft carrying the GeoSAR sensors at the wing tips.

LaTour was chosen due to its extensive inventory data, its uniform white fir stands, and because it has relatively flat terrain on portions of the forest.

Potential applications for this technology are impressive. Increased accuracy in ground topography data will improve landslide prediction and hydrographic models and information on tree heights will enhance forest inventory efficiency. Another valuable application that would use both vegetation height and ground topography is fire behavior prediction.

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## Jackson Demonstration State Forest Hosts Cal Eco Adventure 2003

One of the purposes of California's Demonstration State Forests is to show that recreation, wildlife habitat and sustainable forest management are compatible. On May 3, the 2003 Cal Eco Adventure Race Series held the third of five team races at Fort Bragg, California, where Jackson Demonstration State Forest (JDSF) provided an excellent venue for two sections of the race. The first two races were held at Lake San Antonio and in Santa Barbara.

In the first leg of the Fort Bragg race, participants spent three hours in kayaks just off the coast, paddling hard through the ocean swells and a tricky landing at the mouth of Big River. Eighty percent of the teams capsized in the five to six-foot breaking waves before landing on the beach. Then they moved into JDSF for a

25+ mile hike before switching to mountain bikes for the final leg of the race. The teams wound their way over a course that took them through a myriad of cross-country routes, forest trails and logging roads that put all of their navigation skills to the test, and several teams found themselves back-tracking more than once to find their bearings.

Team Earthlink won the day with a time of 19 hours, 29 minutes with team Montrail only five minutes behind them. Third place went to team Bones with a time of 19 hours and 52 minutes. Race four took the teams to South Yosemite and the final race was held at Mammoth. The racers experienced parts of the Forest managed for timber production, for research, for ecological values, and for recreation purposes. The sponsor hopes to include JDSF again in future races.

## Forest Monitoring Studies Track Wildlife Populations & Habitat

### Mountain Home Demonstration State Forest Carnivore Study

Over the past 100 years, the American pine marten and the Pacific fisher populations have been in decline. This may be related to the combined effects of a decline in their prey base and loss of habitat to development, forest recreation and simplification of complex forest structures. The Mountain Home Demonstration State Forest (MHDSF) supports a number of pine martens and fishers, both members of the Mustelid or weasel family. These hardy little animals are typically associated with late seral forests, and on the MHDSF they appear to be doing well.

A carnivore study was performed by MHDSF staff to learn more about their numbers, behaviors and preferred habitat. It also looked at the relationship between the animals, a working forest environment and recreational activities. The study was done in two phases, the first beginning in the fall of 2001 and the second covering the spring of 2002.



A Pacific fisher taking bait. The animal's tracks are recorded using a sooted plate inside the bait box.

The survey results show the number of stations visited by martens was nearly equal on the east and west sides of the forest; the overall number of visits increased by 50 percent over a prior survey done in the fall of 1992 and spring of 1993, for a total of 60 station visits. The number of visits by fishers on the west side of the forest increased by 57 percent to 14 visits, although no fisher activity at all was recorded on the east side, which had nine visits in the prior survey.

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### **Soquel Demonstration State Forest Steelhead Trout Population Survey**

In September of 2002 a fish population and habitat study was conducted by the California Department of Forestry and Fire Protection (CDF) with the assistance of the National Marine Fisheries Service (NMFS) and the California Department of Fish and Game. Steelhead population sampling occurred at four sites; three on the east branch of Soquel Creek and one on Amaya Creek.

The purpose of this study is to add to the previously accumulated baseline data of fish populations in the significant fish-bearing creeks that run through Soquel Demonstration State Forest. This is the ninth year of monitoring by CDF.

Each station was tested three times, and the number of fish by species, length, age and weight were recorded for each pass. In addition, scale samples were taken for use by NMFS in research independent of the sampling addressed in this study. Amphibians such as newts, Pacific giant salamanders, yellow-legged frogs, and crayfish were also recorded at each station.

The estimated 2002 steelhead population for Amaya Creek shows an increase of 32 percent of the 2001 estimate. On Soquel Creek, the Longridge station population was up by 8 percent, the Spanish Ranch station was almost identical to the 2001 estimate and the Ashbury Gulch station continued its downward trend, falling by 58 percent from last year, possibly due to an obstacle downstream or drought conditions.

### **Soquel Demonstration State Forest In-stream Temperature Monitoring**

From May 31, 2002 through October 25, 2002 Soquel Demonstration State Forest installed temperature data loggers at seven locations in streams throughout the forest to continuously monitor water and air temperatures on a watershed level during the dry



CDF state forest personnel, National Marine Fisheries Service researchers, and community volunteers count and record fish and other wildlife living in Soquel creek.

season. Water temperatures above 70° F make it difficult for adult coho salmon and steelhead trout to extract oxygen from the water. In addition, at higher temperatures the water itself has less oxygen by volume available for the fish to use. For juveniles the optimum water temperature is between 45° F and 58° F.

The seven sites are in approximately the same locations as those used in previous studies, and this year canopy readings were also taken at every site. Each in-stream data logger is sealed in a clear plastic canister, attached to a rock in the streambed and covered with stones to keep the unit submerged and safe from tampering. At each site a second data logger is placed in a tree about 12 feet over the creek to record air temperature readings. The data loggers are pre-programmed to take a sample every one to two hours, 24 hours a day.

Over time, tracking the air and water temperature of this watershed will create a database that will complement other fish and wildlife surveys as well as studies on the impact of forest management on the wildlife in the redwood region.

*For information on how to receive the full reports on these monitoring studies see page 4.*

For more  
information on  
California's  
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visit the CDF  
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[www.fire.ca.gov](http://www.fire.ca.gov)

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- ☐ Tree Notes #27, White Pine Blister Rust in California
- ☐ Forest Carnivore Survey Report, Mountain Home Demonstration State Forest (CD ROM only)
- ☐ Instream Temperature Monitoring 2002, Soquel Demonstration State Forest
- ☐ 2002 Steelhead Trout Population Survey Report, Soquel Demonstration State Forest

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